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Settlement and Landscape Development in the Homs Region, Syria: Research Questions, Preliminary Results 1999-2000 and Future Potential

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This report describes the results of the first and second seasons of field work by an interdisciplinary research team studying the landscape history of the upper Orontes Valley near Homs in western Syria. Initial discussions address the value of survey data to Syrian archaeology, the research aims of the project and describe the survey area. The project methodology, which includes a combination of both extensive and intensive survey methods, is outlined, and the use of satellite imagery as a means of site location discussed. Work on geomorphological processes and off-site artefact distributions has facilitated the development of sampling strategies for intensive surface collection planned for 2002 and 2003. A test core has established that pollen is well-preserved in the silts of Lake Qattine, which appear to offer a west Syrian palaeoenvironmental sequence. Preliminary work in the basalt terrain west of Homs has allowed the refinement of methodologies for the mapping and analysis of cairns and field systems which predominate in this area, and has highlighted the threat resulting from current bulldozing. The report concludes with some preliminary observations on the main trends as these are emerging from the data.

1. The value of survey in the Homs region

Settlement and Landscape Development in the Homs Region, Syria (abbreviated as SHR) is a multidisciplinary, multi-period regional survey project with both archaeological and palaeoenvironmental dimensions. The project seeks to compare and interpret settlement organization in a sample area of western Syria over a long time-scale, and across several quite different environments. This is done in order to understand not just the ecological context of human activity in western Syria, but also the complex interplay between natural and anthropogenic factors in shaping long-term trends in regional landscape development. Established in 1999, it is a joint project between the University of Durham and the Directorate General of Antiquities and Museums (DGAM), Syria.

The research perspective

The project is designed to address a set of key research issues.

1. Collection of survey data for inter-regional comparison

With the growth in the availability of survey data from the Near East it is now possible to compare settlement trends between southern and northern Mesopotamia, and even contrast developments within different parts of the latter region (Wilkinson 2000). Equally, the numerous surveys (albeit of variable quality) undertaken in the southern Levant in recent decades have highlighted both broad homologies and significant intra-regional distinctions within patterns of settlement change through time (e.g. Broshi and Gophna 1986, Finkelstein 1995, Finkelstein *et al.*

1997). However, it is less fruitful to compare the evidence from Greater Mesopotamia with that from the southern Levant because of the virtual absence of systematic survey data from the intervening northern Levant, i.e. western Syria. The location of Homs in the heart of the latter area, makes it key to the investigation of wider inter-regional patterns.

Archaeological research in Syria has traditionally been focused upon excavation, with particular emphasis upon large sites. Far less attention has been devoted to the investigation of long-term patterns in settlement organization and landscape development. The weaknesses of the existing data for Syria have been highlighted by Alcock's (1994, 181) pan-regional review of settlement evidence in the Hellenistic world; it proved virtually impossible to discuss Syria because of the lack of reliable survey data. While the situation is slowly changing as the result of new survey projects, these have mostly been concentrated in northern Syria (Wilkinson 2000, fig. 1, table 1). As far as western Syria is concerned, the little survey data that has been published (Courtois 1973, Iwasaki and Tsuneki 1999, Liverani 1965, Pericoli Ridolfini 1965), suggests a concentration by field teams upon sites which were self-evident – tells, or locations characterized by stone architectural remains. The deficiencies of such methods have recently been highlighted by the results of intensive survey in northern Syria (Wilkinson 1998, 71–73), and traditional survey would almost certainly have failed to detect many of the sites in the present project area. In the case of the Orontes Valley around Homs (Fig. 1), even this very basic level of information is unavailable, and our knowledge of the local archaeology remains dependent upon information from a small number of excavations, many of which are old, or largely unpublished (Gautier 1895; du Mesnil du Buisson 1935; Parr 1983; Pezard 1931).

2. Monitoring inter-regional interaction

Given that the Homs region is located close to the boundary between what appear to be two broad, and enduring 'cultural zones' – the southern/coastal Levant on the one hand and 'inland' Syria on the other – an understanding of developments in both settlement and material culture within this area is vital if we wish to investigate long-term trends in Levant-wide patterns of inter-regional contact. This can be approached by careful consideration of the changing nature of the material culture of sites in the Homs region, and by monitoring both the presence of non-local material,

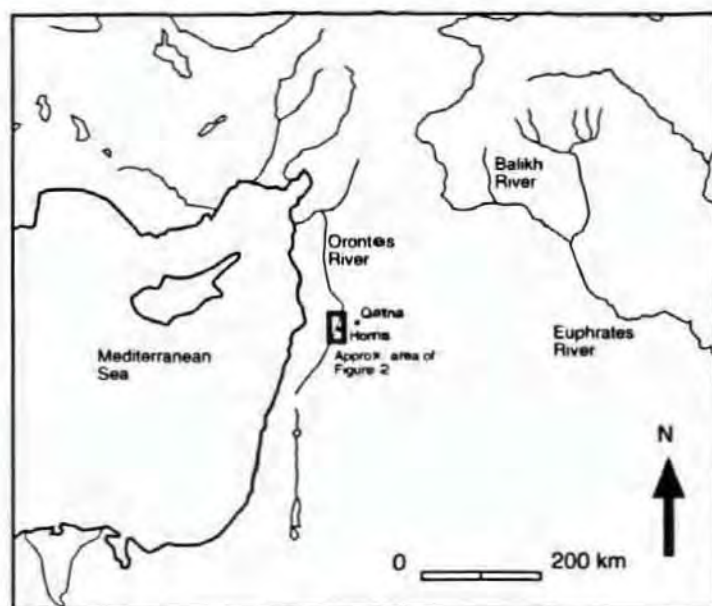


Figure 1. The east Mediterranean basin showing the location of Homs and the study area.

and patterns of technological and stylistic change within local products.

3. Region-specific themes

The location and history of the Homs area render it of great value for the investigation of a number of important, and currently poorly understood thematic issues. Examples include: the nature of Neolithic activity in the northern Levant the relevance of which has been highlighted by recent evidence from Cyprus (Peltenburg *et al.* 2001, 55–59), the physical evidence for the Bronze Age polity of Kadesh, the regional impact of the growth of Homs as a major economic centre under the Roman Empire, and the nature of Islamic period rural settlement.

The location of the area at the junction of agricultural and pastoralist territories, combined with its easy access to the coast through the Homs-Tripoli gap, offers an interesting opportunity to assess the relative importance of environmental and political/economic factors in shaping landscape development. It should also be possible to examine the articulation of different, but contemporary communities and lifestyles. This will be tackled by examining the nature of human activity in different parts of the project area, and by comparing the material culture of contemporary sites of different size, or located in different environmental zones. This possibility is both enhanced and complicated by the fact that the region includes several quite distinct environments, which differ markedly in

their economic possibilities, in the nature of their archaeological records and also in the degree to which surface remains have been affected by subsequent agricultural activity (see Section 2 below).

4. Methodological issues

As Wilkinson (2000, 226–229) has observed, there is a need for methodological development in survey as applied to Near Eastern archaeology. However, the wholesale importation of methods from one area to another is unlikely to provide a solution (Blanton 2001, 628–629). Thus the project seeks to develop methods that will provide data suited to addressing the key regional research issues, and which are sufficiently robust to cope with the logistical difficulties encountered in many parts of the developing world (see Section 4 below).

The documentation of the archaeological record

The Homs area is of great importance to the present-day Syrian economy (Dbiyat 1995, 152–164). As a result, the archaeological resource is under severe threat from development, in particular residential construction, industrial projects and intensified agricultural practices. Preliminary work in 1998 established that many of the sites in the survey area do not take the form of tells, but survive as 'flat' artefact scatters. In a region where tell archaeology is perceived as the 'norm', the lesser visibility of ploughsoil scatters means that these are far less likely to be identified, and thus protected, than tell sites. In a similar vein, extensive areas of ancient stone field systems and cairns in the basalt landscape north-west of Homs are currently being

destroyed through efforts to improve agricultural returns. There is therefore an urgent need to develop a fast, effective system for recording and documenting the archaeological record before it is destroyed. As Syria does not currently have a national archaeological inventory, one aim of the project is to generate a database of archaeological remains within the project area that can be used by the DGAM for the purposes of planning and monitoring.

2. The project area and its constituent landscape units (Fig. 2)

The project area consists of two large blocks, termed study areas. The northern study area is located north-west of Homs and comprises c. 180 km². The southern study area lies to the south-west of Homs and covers around 400 km². The exact boundaries of the two study areas were determined in part by security considerations, but between them they include representative samples of each of the three environmental zones characteristic of this region of the Orontes Valley: marl, alluvium and basalt plateau. The study areas were designed to be sufficiently large to permit the delineation of overall settlement structure, and thus the monitoring of settlement change through time within each environmental zone, while remaining small enough to make feasible the close-spaced field-walking of a realistic sub-sample of each. The extents of each environmental zone contained within a study area are termed landscape units, and form the basic analytical categories for sampling etc. This information is summarized in Table 1.

Landscape Unit No.	Study Area	Area (km ²)	Environmental Zone	Current status of irrigation
1	Southern	380	Marl	Big expansion in last decade
2	Northern	40	Alluvium	Substantial irrigation for several decades
3	Northern	120	Basalt	Limited and recent
4	Northern	40	Marl	Substantial irrigation for several decades
5	Southern	20	Alluvium	Well established, but small scale

Table 1. *The main components of the project area.*



Figure 2. The project area showing the northern and southern study areas, the various landscape units and environmental zones, and key locations discussed in the text; Landsat TM image ID: LT5174036008727410, Date: 1st October 1987, Bands 3, 2, 1.

There is little recent literature on the geological and geomorphological characteristics of the region, so the acquisition of such information forms a key element of the project. In the meantime, however, the following brief summary of the main environmental zones is reliant upon a limited range of older publications (Ponikarov *et al.* 1967; van Liere 1960–61; Vaumas 1957; Voûte 1955), and the summary statements of Wirth (1971) and Wolfart (1967).

The marl zone

Unit 1

Unit 1 is located south-west of Homs, and consists of Upper Miocene lacustrine marls, overlain by thin irregular sheets of Pleistocene pebbles and gravels. These are capped by a thin layer of red-brown soil. This zone offers good potential for rainfall agriculture. However, with the exception of the Orontes River, there is little present-day evidence for year-round surface water; most pre-modern settlements in the area were dependent upon wells. Until recently agriculture was predominantly based on the dry-farming of cereals, with localised areas of irrigation around springs in the region of al-Qusayr, or close to the Orontes River. In recent years, however, there has been a massive expansion of both tree crops (mainly olive and almond) and horticulture which has been made possible by irrigation, mainly through the pumping of ancient (and non-replaceable) water from aquifers. In many cases the wells exceed 100 m. in depth; some farmers report drawing water from depths of up to 200 m. The spread of these new crops has much reduced the visibility of ancient remains on the ground, compared to the situation some 20–30 years ago.

The unit is crossed by several shallow wadi systems that originate on the lower slopes of the Anti-Lebanon range and cross the terrain in a north-westerly direction. These are presumably the fossil valleys referred to by Van Liere (1960–61, 33), and which are shown on recent maps as seasonal water-courses. Field investigation indicates that these wadis become broader and shallower as they extend away from the uplands, and are scarcely perceptible in some places. The absence of visible recently eroded channels on the lower stretches of the wadis suggests that it is unlikely that they carried significant flows of water in recent times. The wadis appear to stop some distance before reaching either Lake Qattine or the valley of the Orontes, and a deeper understanding of their development and their likely impact upon human activity will require further geomorphological investigation.

Unit 4

Unit 4 is similar geologically to Unit 1, but is of particular interest as it is located within the northern study area where agricultural practices were substantially modified by the introduction of irrigation in the mid-twentieth century AD (Whitaker 1996, 337, fig. 15). A comparison of Units 1 and 4, which have undergone very different patterns of irrigation, will provide a means of assessing the impact of recent agricultural practices on two areas with once comparable archaeological records. The results will have important implications for both future research and heritage management strategies.

The alluvial zone

Units 2 and 5

Units 2 and 5 encompass the zone of alluvial soils located close to the Orontes north of Homs, and south of Lake Qattine, respectively. As the alluvial zone offers ready access to water, and would have provided a hospitable environment for human occupation, it seems reasonable to expect a degree of long-term settlement stability within these units. The developmental history of the Orontes Valley is poorly understood at present, although likely examples of ancient river terraces have been identified north of Homs, close to the village of Tir M'ala (de Vaumas 1957, 178), and close to Arjoune, south of Lake Qattine (field observation, December 1999). Preliminary visits indicated that alluvial deposition was potentially deep but uneven, and the decision was made to delay detailed archaeological work in these units pending further geomorphological investigations.

The basalt zone

Unit 3

Unit 3 is located towards the eastern edge of the Shin plateau, a large expanse of Pliocene basalt, beginning some 40 km. west of Homs, and the eastern margin of which lies close to the current Orontes Valley. In recent times the landscape has consisted of large areas of thin, boulder-strewn basaltic soils used intermittently for rain-fed agriculture. The rocky surface results from the disaggregation of the basalt, and subsequent soil loss through water action. Soil and water are transported downslope, either towards the Orontes, or into small internal depressions (Arabic *ram*) that collect water and sediment. These may be inundated in winter, and as many have no external drainage, have been known to retain water well into the spring or even early

summer. As such they might be expected to have been of particular interest to past human populations. Although rainfall is sufficient for the dry-farming of cereals, water for humans and livestock has generally to be collected by artificial means.

While both past and present-day activity confirm the importance of the basalt landscape as an agricultural resource, there is little published literature that deals with its history or the organization of local communities; this information will need to be collected by the project team. The area also poses difficulties for traditional archaeological analysis, in that the ancient settlements do not take the form of readily visible tell sites. Rather, the presence of large quantities of basalt boulders in the landscape suggests that stone was the primary construction material, and that considerable re-use should be expected. This appears to be confirmed by the frequent appearance within present-day villages of sections of wall, lower courses in particular, which are of a construction quite different from that used today. In fact, the most striking feature of this area at present is the existence of an extensive distribution of rectilinear field systems demarcated by drystone walls, and which includes numerous stone

cairns, a striking example of the human impact on the landscape (Fig. 3). The archaeology of the basalt is therefore quite different from that of other parts of the project area, and is probably closer to that documented by researchers working in the Hauran area of southern Syria (Dentzer 1985; Braemer 1993).

3. Approaches to archaeological survey

In addition to the aims outlined above, the project is intended to address a set of wider issues. For example, it is intended to develop and apply a suite of techniques, which can collect the types of data necessary to tackle a range of questions relevant to both current and hitherto little-explored research problems in Near Eastern archaeology. Thus the project draws upon aspects of two rather different traditions of archaeological survey, the extensive techniques that have dominated in the Near East, and the intensive approaches now favoured in Mediterranean archaeology (Francovich and Patterson 2000). These are deployed in the context of a project GIS that makes extensive use of cartographic and satellite image data, to provide a key desktop resource around which fieldwork can be structured.



Figure 3. General view of cairns and field systems in the basalt landscape west of the Orontes (Unit 3).

Archaeological survey as practised in the Near East remains largely site-centred, and in most cases has consisted of the collection of unquantified 'grab' samples from tells and other conspicuous sites (Wilkinson 2000, 223). While this approach can produce rapid results at low cost, its weaknesses are well known (Cherry, 1983; Rosen 1986, 47–50). In particular, the resulting publications may consist of little more than period by period site lists, which, depending upon the amount of detail provided and the quantity of supporting documentation, offer variable possibilities for more imaginative analysis (Joffe 1992, 91). That said, it is worth making the point that in western Syria, where reliable information on settlement location and structure in even the broadest sense is minimal, there is an undeniable need for the collection of data which will clarify the main diachronic trends in settlement organization and land-use within the region. In fact, the absence of such broad scale data, seen as vital for inter-regional comparison, has been characterised as a weakness of some recent intensive survey projects in the Mediterranean (Blanton 2001).

Moreover, as Wilkinson (2000, 227) has observed, one advantage of regional surveys that focus upon settlements, is that they provide data, the structure of which can be addressed by a range of spatial analytical techniques. There is now a growing body of settlement data from various parts of the Near East, at least some of which has been subject to a degree of spatial analysis (Wilkinson and Tucker 1995; Falconer and Savage 1995; Harrison 1997; Wilkinson 1998). As a result, it is now possible to make inter-regional comparisons on both synchronic and diachronic dimensions, in a way that would have been impossible even a decade ago. However, the settlement data presently available to researchers is concentrated upon either Mesopotamia, or the southern Levant. These are two very different regions, and are hard to compare without some comprehension of developments in the intervening, and far less well documented, territory of western Syria. The location of Homs in the heart of the latter region suggests that it will make an important contribution to an emerging discussion on the interpretation of settlement trends on an inter-regional, as well as on a local scale (Falconer and Savage 1995; Wilkinson 2000).

However, the project aims to do far more than simply locate and define settlements. It is also focused upon the wider landscape, and records categories of evidence frequently overlooked in Near Eastern archaeology such as ancient field systems and land boundaries, and infrastructural remains such as communications routes, irrigation systems,

mills and olive-presses (Fig. 4). The recording of such features requires a commitment to intensive fieldwork of a kind that has sometimes been termed 'off-site' survey. The value of survey of this kind in a Levantine setting has been amply demonstrated by recent work in the Wadi Faynan in southern Jordan (Barker *et al.* 1999; 2000). This project has looked beyond settlements to examine ancient field systems and water management installations, has assessed the quantitative distribution of archaeological material across the study area, as well as providing clear evidence of the impact of ancient copper smelting upon the local environment. It is hard to imagine such information being collected in the course of a traditional site-based survey.

Clearly, intensive survey of the whole area is out of the question, on resource grounds alone, and so there is a need to develop a clear strategy for sampling. It worth re-iterating the point made by Alcock *et al.* (1994, 138) that sampling must be guided by the known distribution of archaeological finds, and a detailed knowledge of local landscape types. As published information on the Homs area is limited, and the different environmental zones show marked diversity in the nature of their respective archaeological records, it was deemed necessary to adopt a multi-stage survey strategy, whereby an initial phase of survey devoted to the acquisition of fairly coarse-grained data on the nature and distribution of the evidence for human activity in the area, the local environment, and patterns of anthropogenic landscape modification through time, would be used to inform the aims and design of the later, more intensive sampling. The report below deals mainly with the initial phase, intended to outline the nature and main features of the local archaeological record. However, it also describes some first steps towards the establishment of a framework within which a subsequent phase of more intensive work can be carried out.

4. Site-based survey work

Reconnaissance survey and site location: desktop assessment

Before ancient settlements can be investigated, they must first be located – no easy matter in a poorly known landscape. The existence of numerous 'flat' surface concentrations of artefactual material, a number of which did not appear on the available maps but which had been revealed by preliminary visits, indicated that traditional map-aided, tell-centred survey would neither provide an effective means



Figure 4. Remains of olive press from SHR 086. The site is located in the marls of Unit 4 but the weight and tank are made from basalt.

of creating an archaeological inventory for cultural resource management purposes, nor of investigating ancient settlement organization. The key requirement was for a technique which would provide a means of establishing the general outlines of ancient settlement over an area large enough to fulfil the aims outlined above, but without requiring unfeasibly large amounts of field-walking.

Map data

An initial desk-top assessment was undertaken using Syrian 1:50000 topographic maps dating to the 1980s. Around 90 features were thus securely identified as archaeological sites (hence Known Sites), either marked by specific map symbols or identified by place names such as *tell* or *khirbah*. Additional locations, termed Potential Sites, were highlighted through the evidence of a smaller number of less specific toponyms that *might* indicate an association with ancient remains. To this category were added a number of nameless contour features identified on the maps, and indicative of distinct

areas of high ground of the sort which might represent the presence of low tells. The effectiveness of this technique was limited by the undulating terrain, and the employment of a minimum 5 m. contour interval on the maps. By these procedures another 80 or so 'Potential Sites' were added to the database, although some of these were almost certain to represent natural features. Another difficulty lay in the fact that the maps provided only a very generalized impression of the complex network of ancient field systems that could be observed in Unit 3 (see below), and so did not provide an adequate basis for the investigation of these structures.

The other main component of our site-location strategy has been the use of CORONA satellite photography which has greatly enhanced the scope of initial desktop study. These images, which have been generally available since 1996, were taken during the late 1960s, and early 1970s and constitute an extremely valuable resource for archaeologists working in the Near East (Kennedy 1998; Philip *et al.* 2002). For the sake of brevity, in what is primarily a

summary field report, those seeking a discussion of the various ways in which CORONA imagery is being used by the project are directed to Philip *et al.* (2002), and for information on the technical details of the CORONA satellites and their camera systems to Donoghue *et al.* (2002).

Examination of CORONA images of the southern area, taken after the harvest revealed that a large proportion of the Known Sites appeared as distinctive, usually dark, features in the imagery. (In practice archaeological sites usually consist of soils that are rather lighter in colour than the surrounding landscape. The dark colour results from our decision to scan CORONA negatives, in order to use the data in a condition that was as close to its original mode of acquisition as possible.) The most likely explanation for this phenomenon is that certain characteristics of deposit composition or structure result in a distinction between the reflectivity of soils containing quantities of anthropogenic debris, and those originating in the local geology. This issue is currently under investigation through laboratory analysis of both on-site and off-site deposits.

Further inspection of the imagery also revealed a significant number of similar features, but which were not associated with Known Sites. These features were included in the category 'Potential Sites', and marked for ground observation. Taking the project area as a whole, in contrast to the 170 or so Known and Potential Sites located through the maps, inspection of satellite imagery revealed well over 400 anomalous features, many of which appeared to resemble Known Sites in terms of their appearance in the imagery.

Reconnaissance survey and site location: fieldwork

The first phase of ground observation of features identified through satellite imagery was undertaken in August–September 2000. A grid of 2 × 2 km. squares was imposed on the project area, with 20% of the squares, subject to ground inspection. The selection of units was broadly stratified to reflect the proportion of the study area belonging to different environmental zones. The visits were designed to: ground observe both Known and Potential Sites identified from the satellite imagery; record information about sites visited (extent of scatter, morphology, soil and vegetation cover etc.) in order to elucidate the relationship between the satellite images and the evidence visible on the ground; collect a small sample of diagnostic surface material to allow a provisional identification of the main periods of activity represented.

In the process of these visits, Potential Sites were reclassified as Known Site, Non-Site or Masked. Non-Site refers to situations in which the anomaly detectable on a satellite image could be attributed to some identifiable feature other than the presence of archaeology. Masked refers to situations in which the status of a site could not be investigated because of difficulty of access, or because the ground surface recorded by CORONA some thirty years ago had since been either obscured or substantially modified by constructional or agricultural activity. During the 2000 field season 138 potential sites were visited. These are now beginning to provide basic information on site distribution, and occupational periods present. This information will contribute to the formulation of future sampling strategies (see below).

The value of CORONA imagery as an aid to the identification of concentrations of past human activity, settlements in particular, is best outlined with reference to a specific example area, which includes sites of several different types (Table 2, Fig. 5). Those sites discussed below are located around 12 km. SSW of Homs, in an area dominated by marl deposits and conglomerates (Ponikarov *et al.* 1967). The satellite image presented in Figure 5 was taken after the harvest and so crop cover is minimal.

The two tell sites (SHR 255 and 256) were clearly marked on the 1:50000 map series and both are readily visible on CORONA as distinct dark areas. The map-contours indicating the tell of SHR 256 covered an area considerably smaller than the dark area visible on CORONA, suggesting that this might be a complex site. Field-walking confirmed that this was the case as it revealed the presence of a distinct concentration of artefactual material (SHR 458) extending southwards from the south-eastern margin of the tell. This occupation was chronologically distinct from that on the tell itself. CORONA also proved highly effective in locating flat, but relatively extensive artefact scatters, a category of site the importance of which had been highlighted by preliminary work in 1998. SHR 308 and SHR 454 which appear as distinct dark zones on Figure 5 are good examples. SHR 308 could be equated with a place name (*khirbah*, ruin) appearing on the 1:50000 map, but in a location several hundred metres distant from the actual site (see Table 2). On the other hand, CORONA provided no indication of the presence of small or sparse artefact scatters, such as SHR 447, which was located during field-walking of the area covered by Figure 5. On present evidence then, as far as the southern survey area is concerned, CORONA has proved most effective for the identification of features that appear from their surface remains most likely to represent settlements.

Site no.	Approx. size	Periods identified	Indication on 1:50000 map	Method of initial location
255	Tell 0.7 ha., Height 5 m.	Bronze- Iron Age	Name Tell Aqarib and contour	Mapping, confirmed by CORONA
256	Tell c. 1.5 ha., Height 10 m.	Bronze- Iron Age	Name Tell Ahmad and contour	Mapping, confirmed by CORONA
308	Scatter sherd/tile 1.5 ha., flat	Islamic	Name Khirbat al-Matr, without symbol or contour indications	CORONA, confirmed by field-walking
446	Olive press	Roman- Islamic	None	Field-walking
447	Sparse artefact scatter, extent uncertain.	Prehistoric	None	Field-walking
454	Scatter, sherd/tile 1.2 ha., flat	Roman- Byzantine	None	CORONA, confirmed by field-walking
458	Scatter, sherd/tile, full extent masked by recent tree planting	Roman/ Islamic	None	CORONA, confirmed by field-walking
472	Scatter, basalt fragments and flint; Diameter <30 m.	Prehistoric or perhaps a threshing floor ?	None	Field-walking

Table 2. Sites in the example area

The use of CORONA imagery in combination with ground observation visits means that we are rapidly building-up information on the distribution of settlements. This data will provide a basis from which a sub-sample of settlements can be selected for more detailed investigation in the future. For example it would be desirable to compare the range and diversity of archaeological material occurring on sites of the same period, but which differ in terms of size, morphology, local environment and post-depositional events. In order to facilitate this later stage of the project, we are currently testing a range of techniques for the systematic sampling of surface material on a small group of sites chosen as representative of the main categories so far identified. The results of these trials will form the subject of a future report, and so are not discussed here

The dating of surface material

The key sources for the dating of surface material are the stratified sequence from Tell Nebi Mend excavated during the 1970s and 1980s (Parr 1983; Matthias and Parr 1989) and current Syrian-Italian-

German excavations at Mishrifeh-Qatna, east of Homs. Bronze and Iron Age material is well represented at Qatna, while Tell Nebi Mend has produced a good assemblage of Ceramic Neolithic material, and a long occupational sequence spanning the fourth millennium to the Roman period. Although not all periods have been equally well published (Bourke 1993; Matthias and Parr 1989; Matthias 2000), reference collections are available in both the UK and Syria. A gap at Tell Nebi Mend spanning the Chalcolithic is partly filled by the evidence from the nearby site of Arjoune (Marfoe *et al.* 1981), while stratified material dating to the Islamic period has recently been excavated at the Homs Citadel, a large tell-site bearing impressive Islamic period fortifications, and located in the heart of the present-day city of Homs (King, pers. comm.).

5. Off-site work

Because off-site survey has rarely been undertaken in the region, there has been little attempt to develop methods suited to Near Eastern landscapes (but see

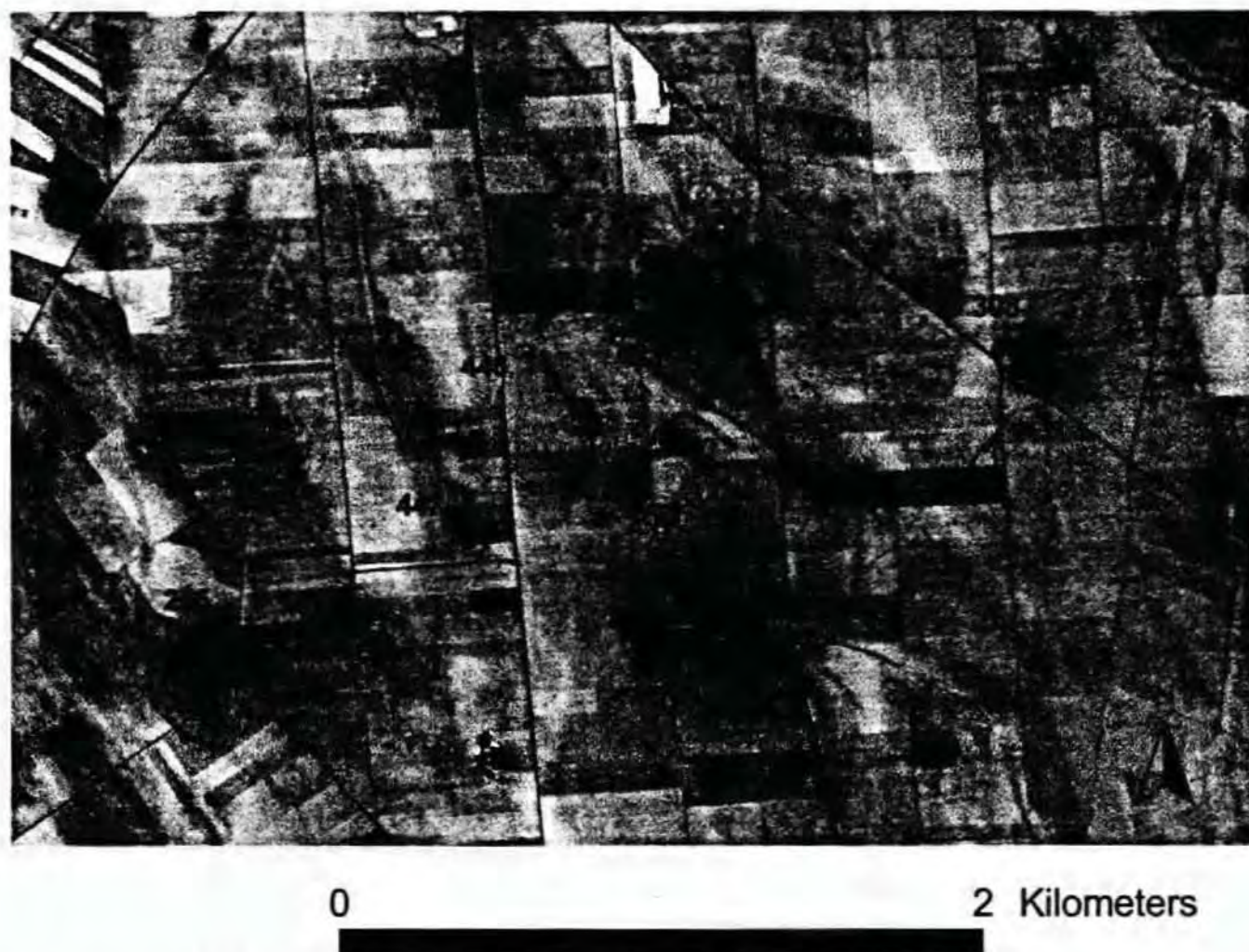


Figure 5. Post-harvest CORONA image showing archaeological sites in the southern study area (CORONA Mission No. 1111, Date: 31st July 1970). Numbers appearing on the image are the SHR numbers listed in Table 1.

Wilkinson and Tucker [1995] for an exception). As in the case of on-site sampling, one of the aims of the project is to evaluate the efficacy of a range of off-site survey techniques.

Geomorphology and visibility

While the impact of geomorphological process upon the visibility of sites in southern Mesopotamia has been apparent for many years (Stronach 1961; Adams 1981), it is only quite recently that researchers in the Middle East have begun to address the sheer complexity of the processes involved, and the degree to which these can vary at locations which are only a short distance apart (Banning 1996; Verhoeven 1998; Wilkinson *et al.* 2001). Moreover, in contrast to the palimpsests of human activity preserved in arid or largely abandoned landscapes, the anthropogenic impact upon past remains is likely to have been far more acute in

the most fertile, and thus most heavily exploited areas. The Orontes Valley is a case in point.

Geomorphology and site preservation in Unit 1

While the geomorphology of the area is poorly understood at present, the examination of sections exposed on construction sites and road cuttings at various points within Unit 1 revealed a variable, but relatively thin red-brown soil overlying harder white marl-type deposits. A distinct whitening of the ploughsoil which was observed in places appears to indicate that in those locations the marls are sufficiently close to the surface to become disturbed by ploughing. In order to investigate this systematically, deposit depth was tested by auguring at intervals of 250 and 500 m. along a transect orientated east/west and measuring some 7 km. in length. The transect began at the Homs – Damascus railway and continued westwards to terminate at SHR 251. (Fig. 6). As a result, soil

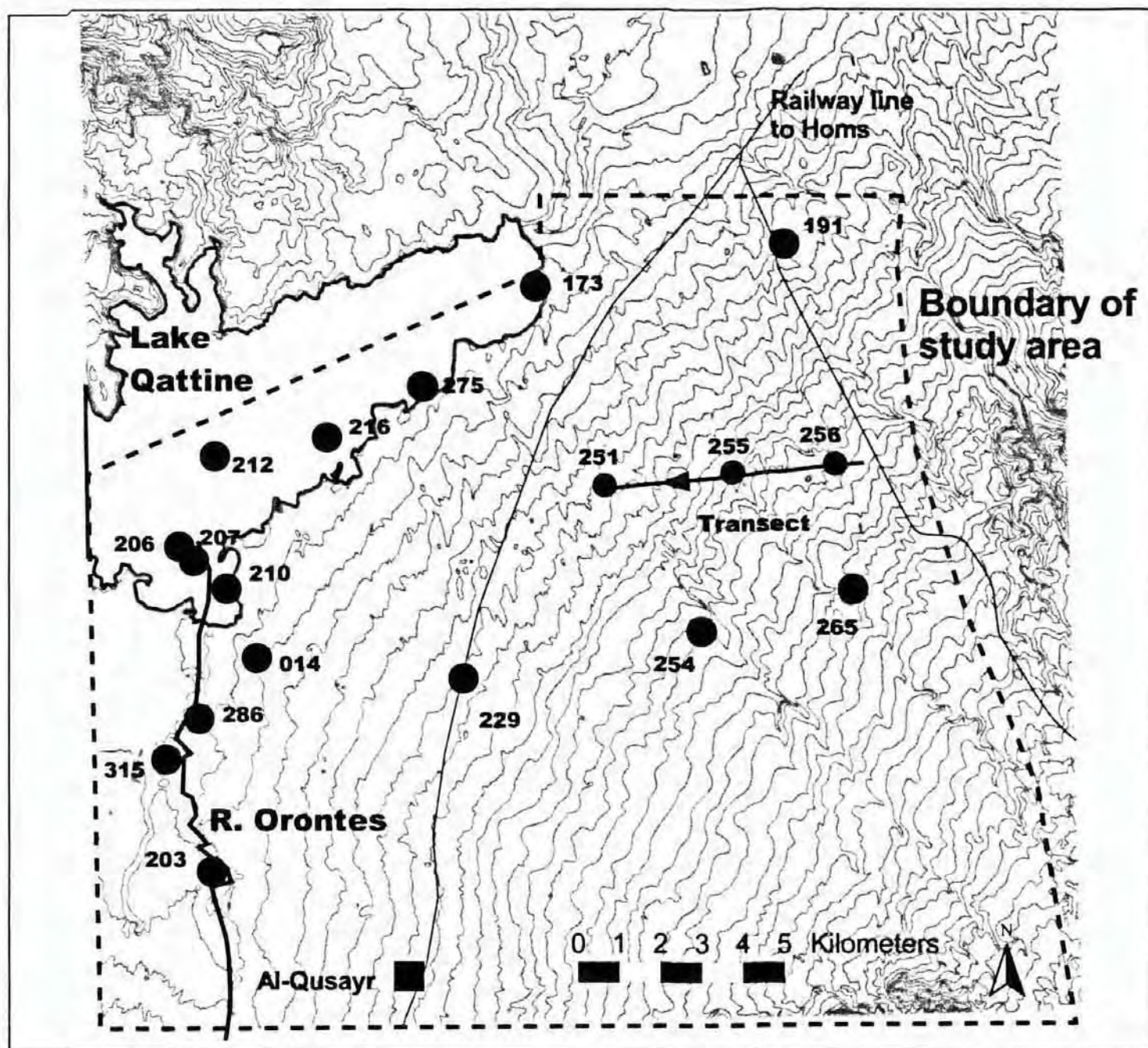


Figure 6. Map of the southern study area showing the modern town of al-Qusayr, all tell sites (numbered), and 5 m. contour intervals that highlight the presence of ancient wadi systems. Tell sites are distributed either along these wadi systems or close to the course of the Orontes River. Note in particular the cluster of tells located at the southern end of Lake Qattine, the result of the expansion of the lake following the raising of the Homs dam in the 1930s. These sites would originally have been located close to the river, and are now on dry-land once more as the lake levels have fallen in recent years. 'Transect' indicates the east/west augering transect running from the modern Homs – Damascus railway to SHR 251.

depth was seen to range mainly between 0.20 m. and 0.40 m., being shallower on the topographic high points and deeper in the wadi bottoms. It appears possible that some parts of the area have been subject to significant episodes of deflation through Aeolian processes. Thus large-scale burial of archaeological features undisturbed by ploughing would therefore appear unlikely, although examination of natural soil

pits, where exposed in section, highlighted the rather uneven profile of the underlying marls, suggesting that some quite localized differences in soil depth, and thus site visibility, were to be expected.

However, the situation is complicated by the fact that depths of sediment of up to 0.70 m. were observed in wadi beds, suggesting that these might contain archaeological deposits buried below the

depth reached by present-day ploughing. A case in point was the identification during field-walking of Neolithic/Chalcolithic occupational material at SHR 478 located on the western margins of Wadi al-Sakhr (and outside the area shown in Figure 5). The observation of this material was possible only because of the presence of an animal hole, which was surrounded by a small patch of distinctive grey soil and an associated artefact scatter of several metres diameter. Elsewhere the grey occupation material was masked by red-brown ploughsoil. This suggests that despite the generally shallow soils, site masking does occur under certain conditions. The resolution of this issue will require a combination of intensive field-walking, the investigation of the basal deposits of tell sites where these can be accessed, and detailed geomorphological work throughout the study area.

Field-walking in Unit 1

The close inter-relationship of satellite imagery, of the nature of the local environment and geomorphology, and of the surface evidence, all of which are acquired through field-investigation, affects our understanding of the evidence. Thus improvements in one aspect of the database, will directly enhance our understanding of the others. Thus far only a limited amount of off-site field-walking has been undertaken, although this is already helping to characterize the nature of the off-site archaeology. A number of transects have been walked in the southern study area, with walkers spaced at 20 m. intervals. The transects have generally run between tell sites and/or along the margins and bottoms of the shallow wadi systems. The initial indications from these transects suggest that the material does not form the 'almost unbroken carpet of off-site pottery scatters' described by Bintliff and Snodgrass for the Aegean (1988, 506), but has a more discontinuous structure, consisting of readily identifiable settlements, separated by large areas of minimal artefact distribution, but within which occasional small concentrations of abraded basalt fragments and low-density pottery or chipped stone scatters can be identified. It is tempting to assign at least some of these to agricultural activities such as threshing, or to the pastoralist campsites which remain a conspicuous feature of the area today. As yet, too few such sites have been examined to allow comparative or quantitative analysis.

A degree of quantitative confirmation of the apparently low numbers of surface artefacts comes from off-site walking undertaken in the immediate vicinity of several tell sites. In each case, four transects orientated to the cardinal points were

established, running for a distance of 200 m. outwards from the break of slope at the base of each tell. The transects were walked by a team of five, each member scanning a swathe 2 m. in width. Each transect was divided in segments 50 m. in length, and all sherds were collected and counted by segment (Table 3). For the purposes of discussion two examples are presented below.

SHR No.	Distance from base of tell	Direction			
		E	N	S	W
SHR 255	50m	12	0.4	10.6	12.2
	100m	0.8	0	0.8	2.6
	150m	0	0.2	0	0.6
	200m	0	0.4	0	0.4
SHR 256	50m	15.6	2.4	37	4.2
	100m	3.4	2.2	22.6	1.6
	150m	0.8	1.8	4	1.6
	200m	0.8	0.8	0.8	1.2

Table 3. Off-site field-walking of transects orientated to the cardinal points. Sherd counts per 100 sq. m².

In the case of SHR 255, the sherd count declined rapidly with distance from the tell in all directions, to reach well under one sherd per 100 m², at a distance of 150–200 m. In the case of SHR 256, the sherd counts declined to around one sherd per 100 m² at the same distance. These figures are considerably lower than those cited by Wilkinson and Tucker (1995, 21–22, figs. 14–16) as characteristic of off-site collections in northern Iraq, and may indicate that patterns of land management were different in west Syria. Wilkinson (1994, 1998) has generally attributed off-site sherd material to manuring using domestic refuse. In the case of our project area, it is possible that the seasonal presence of pastoral groups and their associated livestock supplied a natural means of manuring, thus leaving local communities with no reason to scatter household refuse across the agricultural landscape. That said, the observation of significant, and quite localised, variation in the density of off-site material in the Balikh Valley in north Syria (Wilkinson 1998, 75–77) emphasizes the need for the collection of a far larger sample before it will be possible to draw wider conclusions regarding the nature of surface material in the Homs area.

The transect running southwards from SHR 256 produced rather larger quantities of sherds up to a distance of 100 m. from the base of the tell than did the others. However, the ceramics collected here

were of types not found on the tell itself, and indicate a distinct concentration of later material relating to an occupation designated SHR 458, which is located immediately below the south-eastern slopes of the tell. It was encouraging to note that the presence of this spread of later material is, in fact, recognizable on the CORONA imagery where it appears as an extension of the dark soil mark some way to the south of the contours of the tell itself (Fig. 5).

6. Initial palaeoenvironmental investigations in Lake Qattine

Our investigation of Lake Qattine, one of the few bodies of long-term standing water in western Syria, has been primarily focused upon assessing the potential of the lake sediments for obtaining data suited to palaeoenvironmental reconstruction. The lake owes its existence to the obstruction of the Orontes River by the presence of basalt flows, which restrict its passage to the north (Weulersse 1940, 17). This natural feature was subsequently exploited through the construction of an ancient dam, which raised the water level to *c.* 497 m. (Brossé 1923). The completion of a larger dam in the late 1930s raised the level of the lake by a further 2–3 m. (Calvet and Geyer 1992, 32). However, our own observations in December 1999 combined with examination of French maps dating to the early 1930s, suggest that the lake has now returned to something close to its early twentieth-century boundaries. The marked fall in lake levels in recent years is attributable to a series of dry winters combined with large-scale water extraction for irrigation purposes.

An initial bathymetric survey undertaken in December 1999 established that the depth of the lake rarely exceeded 1.0 m. As a result, it proved possible to sample silt deposits on the lake bottom partly on foot, and partly using a boat. Samples were collected using a Russian hand operated corer with a 50 cm. sample chamber. Twenty-one cores were collected, each around 50–60 cm. in length. These revealed marked fluctuations in the depth of silts preserved at different points around the lake. The significance of this is not yet clear. However, several cores collected towards the southern end of the lake revealed distinct bands composed of compacted shell, suggesting periods of shallow lacustrine conditions in this area, perhaps connected with fluctuating lake levels. Sampling with a narrow gouge auger determined that a greater depth of silt was preserved towards the northern end of the lake. In this area three 1.5 m. deep sections were

extracted, one of these as a dual overlapping core (to alleviate losses at the core boundaries). These did not reveal the concentrations of shell noted in cores from the southern end of the lake.

Results

Lab. no.	Depth of sample	Material of sample	Date BP	Calibrated date (2 sigma)
Beta - 146007	0.89 m.	Wood	3090 ±40	1440–1250 and 1230–1220 cal BC
Beta - 146008	1.58 m	Shell Theodoxus jordanii	3730 ±50	2290–1970 cal BC

Table 4. Radiocarbon dates from Lake Qattine (calibrations performed using OxCal and IntCal98).

A core of 1.58 m. depth was obtained while standing in the lake. Two AMS radiocarbon dates were obtained on samples taken from this core (Table 4). At 0.89 m. depth a sample, initially taken to be charcoal, was subsequently identified as wood by the radiocarbon laboratory. It yielded a conventional radiocarbon age of 3090±40 BP with $\delta^{13}\text{C}$ of -12.0‰. The $\delta^{13}\text{C}$ value is very unusual for wood, but would be acceptable for C4 grass or aquatic vegetation. The nature of the sample is therefore in some doubt and it can only be taken to give a broad indication of the likely age of the sediments.

The second sample is a shell from 1.58 m. depth, yielding a date of 3730 ±50 BP with $\delta^{13}\text{C}$ of -3.3‰. This $\delta^{13}\text{C}$ value is typical of shell carbonate. However given that the catchment for Lake Qattine includes a limestone area, there is the possibility of a hard-water effect, making the date too old. The pH of the lake as measured in September 2000 was 8.7–9.0, and that of the river as it entered the lake 7.7. These values suggest that any hard-water effect is likely to be moderate at worst. In any case the stratigraphic order of the dates would suggest that the lower one is not older than its context by more than a few hundred years. The material from the core therefore represents the accumulation of something close to 4000 years of sediments. The nature of the core sediments suggest that, at least in the northern part of the present lake-basin, lacustrine conditions have been the norm since the earlier second millennium Cal. BC at least.

The core indicated that pollen preservation is excellent, and pollen concentration generally good, at its best reaching concentrations comparable to those encountered in temperate Europe (Gardner

n.d.). Thus a systematic collection programme using a machine corer offers the prospect of a west Syrian palaeoenvironmental sequence that will make an important contribution to the understanding of long-term environmental change in the region.

7. Unit 3: the basalt

The basalt landscape west of the Orontes is characterized by extensive areas of rectilinear drystone walls that demarcate ancient field systems. These encompass approximately 120 km² of the northern study area, and extend over a substantial area beyond. CORONA imagery reveals a number of general characteristics of the field systems. For

example, it is clear that despite considerable variability in the size and shape of individual fields, many walls appear to conform to an orthogonal arrangement, oriented broadly east/west and north/south, and which shows little regard for local topography (Fig. 7). Given the presence of stone cairns as well as walls, this landscape is clearly reminiscent of that of the Hauran, as it appears in pre-World War II air-photographs (cf. Gentelle 1985, pl. v)

As Tate notes (1997, 60), this arrangement is typical of the cadastration method of land division practised during the Roman period. While there has been some discussion of possible air-photographic evidence for ancient land divisions in the area immediately east of Homs (Van Liere 1959;

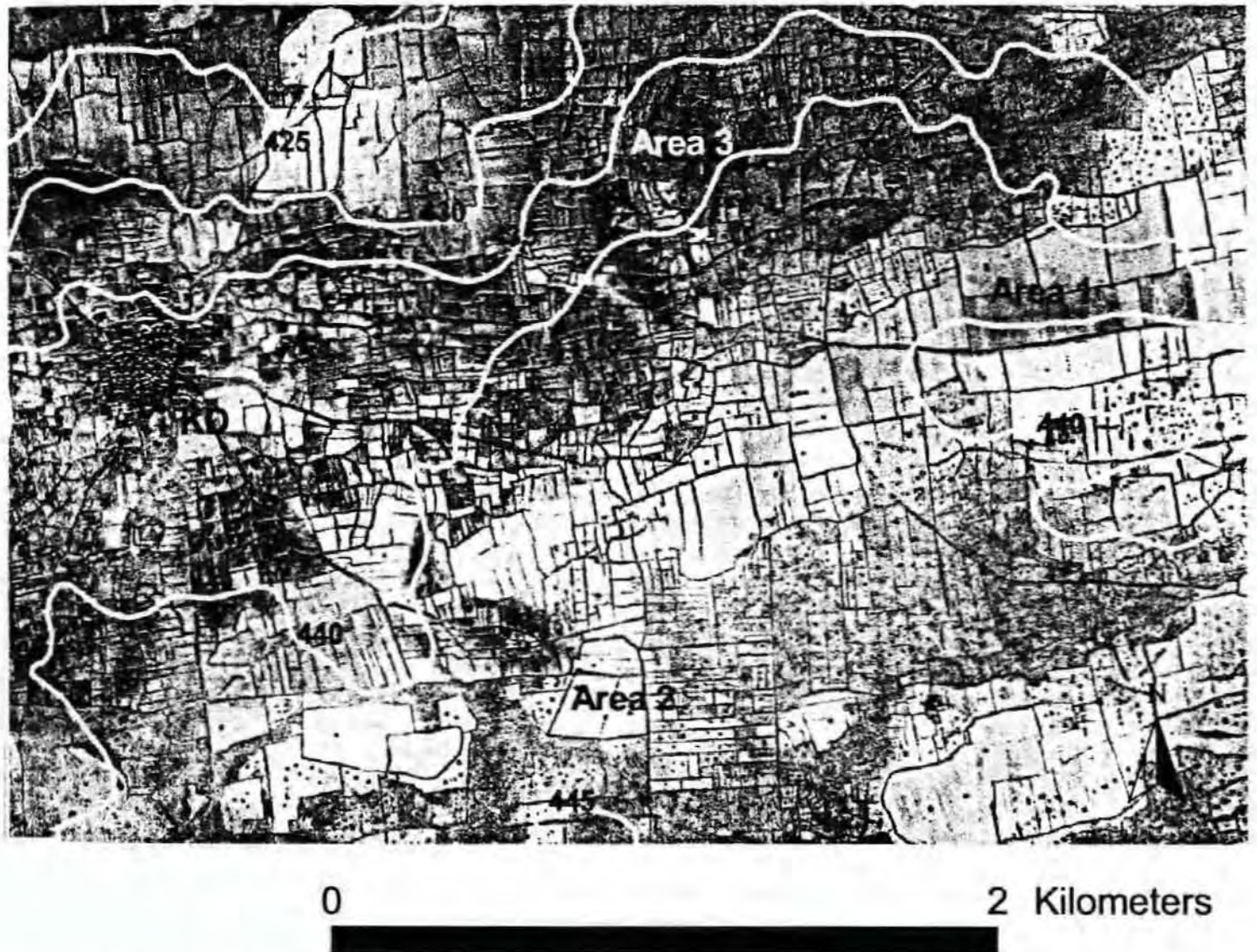


Figure 7. Area of basalt landscape in Unit 3 showing field systems around the village of Karad Dehasnyeh (KD) and 5 m. contour intervals. Note the variability in the size and shape of individual fields, and the contrast between the large fields in Area 1, the small, regular divisions of Area 2, and the irregular field boundaries of Area 3. CORONA Mission No. 1108, Date: 17th December 1969.

Dodinet *et al.* 1990), there is no published discussion of the field systems in the basalt terrain to the west of the city (but see now Abdelkarim 1997).

The original intention was to use CORONA imagery as a direct substitute for air-photographs, and so facilitate the mapping of sample areas within the field systems as a preparation for a detailed ground survey (cf. Barker *et al.* 1997, 27–28). However, initial inspection revealed that the landscape had been modified to such an extent in recent decades as to make it extremely difficult to relate structures preserved on the ground, to specific features that were readily identifiable on the images. Further mapping of these systems has therefore been delayed until 2002, when more recent image data will be available.

As an interim measure, intended to aid our understanding of the nature of, and variability within, the archaeological record of the basalt landscape, a preliminary investigation was undertaken during September 2000 of field systems around the village of Karad Dehasnyah (KD on Figure 7). Some parts of this area appear to have avoided the worst ravages of recent bulldozing. As a result, a variety of structures were recognized: cairns of different shapes, sizes and construction; field walls of various widths, running on different alignments and preserved to a range of heights; a range of oval and rectilinear structures.

The field systems as they survive clearly represent a palimpsest, the combined result of many centuries of modification. By analogy with work elsewhere in Syria (Villeneuve 1985, 126; Tate 1992, 192–193, fig. 233), the higher curvilinear walls which are frequently but one stone broad should represent relatively recent constructions, while the broader walls that are often preserved only one or two courses in height, and frequently show heavy lichen development, ought to relate to ancient land divisions. However, this should be seen as but a very basic typology which will require refinement in due course. Alongside intensive field-walking and surveying, it is also planned to assess the value of lichenometric analysis as means of establishing a relative chronology for the different structures. The project will also investigate the possible functions of different wall types, their relationship to soil types, their position and orientation with respect to slope, and possible function with regard to the management of soil erosion and hydrology.

The cairns form a rather heterogeneous group. Although most are circular, and measure between 8 and 13 m. in diameter, there are considerable variations in height. Moreover, some appear to contain a far higher proportion of soil to stone than others.

Indications of disturbance to cairns include the presence of small hollows or groups of lichen-free stones on top, although the latter may be indicative of recent additions to existing cairns, a practice which has been confirmed by local farmers. While a good number of the cairns are almost certainly connected with land clearance, as in the Hauran where it was observed that considerable care was taken in their construction (Gentelle 1985, 35), others hint at a rather different function. For example, several cairns include small groups of large, flat slabs, positioned vertically in a shallow curve and appear likely to represent something other than field clearance (Fig. 8). In some cases, the lowest stones of the cairns stand some 0.20 m. above the present surface of the fields, suggesting that they overlie ancient land surfaces which have been lost elsewhere as a result of erosion. In addition to the cairns, units consisting of oval and rectilinear walls were observed (Fig. 9). Some of these appear to be linked to, or incorporated within, field walls, and may represent animal pens, or even house remains. Clearly, detailed examination will be required in order to disentangle the various aspects of human activity in the basalt.

Preliminary surface collection revealed that the fields demarcated by the walls contain light scatters of heavily abraded potsherds, among which Roman, Byzantine and Islamic period material can be recognized. In addition, transects walked in the vicinity of the seasonal lake of Ram Sheikh Hanifa which lies to the north of, and down-slope from the field systems in question, revealed a marked concentration of chipped stone along the southern margin of the lake. Preliminary indications suggest that this material belongs to a range of prehistoric periods, including the Chalcolithic and Early Bronze Ages. Thus although the field systems constitute the most striking aspect of the archaeology in Unit 3, it is important to bear in mind that these were superimposed upon, and may in part have been shaped by, a landscape that had already seen extensive human exploitation.

8. Discussion

The discussion below refers mainly to Unit 1, in which the bulk of the work to date has been undertaken.

Prehistoric period

Palaeolithic chipped stone material appears quite widely throughout the survey area, and includes both rolled and relatively fresh artefacts. The exact



Figure 8. Cairn in the basalt showing a group of large, flat slabs, positioned vertically to form a shallow curve. Although it is impossible to be certain without excavation, these seem likely to represent deliberate constructions.

status of this material, much of which may have been exposed by soil deflation, and its quantitative distribution across the landscape, will be examined in future seasons. Far less material of Neolithic date has been recovered through survey, although Ceramic Neolithic occupations have been reported previously at one or two sites within Unit 1 (Marfoe *et al.* 1981; Matthias and Parr 1989). However, the significance of the hitherto poorly documented Aceramic Neolithic of western Syria has been highlighted by the posited role of groups from this area in the settlement of Cyprus during the tenth millennium BP (Peltenburg *et al.* 2001, 58–59).

There are several possible explanations for the apparent paucity of Neolithic sites. Settlements may never have been terribly common in that period, especially away from the Orontes River, where water would have almost certainly have had to be obtained by the digging of wells. That said, the recent evidence for the use of wells on Cyprus during the tenth millennium BP (Peltenburg *et al.* 2001, 39), indicates that the rarity of springs or perennial

streams in Unit 1 was unlikely to have constituted an insurmountable problem for Aceramic Neolithic groups in the Homs region.

Visibility may be an issue, however. As demonstrated by the excavations at Tell Nebi Mend (Matthias and Parr 1989), Neolithic occupations on multi-period tells will almost certainly be buried by metres of later material. Thus, as far as survey is concerned, their presence will only be established by the recovery of occasional diagnostic sherds or chipped stone tools recovered through the systematic sampling of surface deposits. In the case of shallower sites, the instance of SHR 478 has shown that occupations on wadi margins may be masked by present-day ploughsoil. Moreover, the detection of 'sites' using satellite imagery depends upon the archaeological deposits having reflectance properties that distinguish them from surrounding geological material. As this is almost certainly linked to the nature of constructional material employed, and the activities carried out in any particular locus, it is quite possible that the kind of open sites with low artefact densities noted by Marfoe (1998, 93–94) as



Figure 9. Remains of ovoid structure in the basalt.

occurring in the Lebanese Baq'a would simply not be visible on the imagery. SHR 447 is a case in point (See Table 2). Thus the location of prehistoric activity may be dependent upon intensive field-walking.

With the exception of the site of Arjoune (Marfoe *et al.* 1981), Chalcolithic remains too have generally proven evasive during reconnaissance survey. However, significant quantities of painted pottery, in what would generally be termed Ubaid style were observed at SHR 094. This is a large, low tell located close to the Orontes in Unit 2, and which has revealed evidence of stone wall foundations eroding out of exposed sections, suggesting the presence of a substantial settlement of Chalcolithic date. This site would appear to offer an excellent opportunity to examine the nature of a large fifth millennium BC settlement in a location quite close to the transition between the Ubaid traditions of Mesopotamia and the contemporary Ghassulian of the southern Levant.

To summarize, the total corpus of prehistoric material remains relatively small at present. However, the presence of Dark-Faced Burnished Wares and Ubaid-style ceramics appears to indicate

that settlements in the Homs area had strong connections with the north during the Ceramic Neolithic and Chalcolithic periods.

Bronze and Iron Ages

Thus far, neither reconnaissance survey nor offsite collections (albeit limited in quantity), have produced evidence for second or first millennium BC occupations other than those on tells. Thus it is currently our impression that Bronze and Iron Age settlement was concentrated on a relatively small number of long-lived tell sites, although more extensive off-site work in those areas where the tell sites are most densely clustered may modify this impression. Current ceramic evidence suggests that these were occupied, perhaps intermittently in the case of individual sites, from at least the third millennium BC through to the late Iron Age or Persian/Hellenistic periods. Thus the situation in Unit 1 contrasts with the marked increase in the number of small settlements witnessed in north Mesopotamia, the Baq'a and the southern Levant during the Iron Age (Finkelstein *et al.* 1997; Marfoe

1998, 221; Wilkinson 2000, 236–7) suggesting that the latter pattern is by no means universal.

Analysis of the distribution of tells throughout the project area indicates that these are generally concentrated close to the Orontes River. In Unit 1 there is a marked cluster of tells close to the point where the Orontes enters what is now the southern end of Lake Qartine (Fig. 6). This area includes the two largest sites in the southern study area, SHR 315 (Tell Nebi Mend) and SHR 014 (Tell es-Sefinet Nebi Noah) as well as several smaller tells and would suggest the presence here of a significant concentration of population – perhaps the visible manifestation of the ancient political unit of Kadesh. The remaining tell sites in the southern area, are generally quite small, and are not distributed evenly across the terrain but are located along the shallow wadis that run across Unit 1 from south-east to north-west. These, the ‘fossil valleys’ noted by Van Liere (1960–61, 33) were clearly important foci for ancient settlement (Fig. 6).

The cleaning of exposed sections at both SHR 255 and SHR 256 revealed evidence for substantial fortifications. The presence of such defences on tells measuring less than 1.5 ha. in area, and which were unlikely to have accommodated more than a few hundred people, raises interesting questions regarding the function of the occupations at these sites, and the nature of the social and political environment in which they existed. One possibility is that the seasonal exploitation of the area by pastoralist groups may have led the local agricultural population to make a considerable investment in measures designed to ensure the security of their possessions. Another is that these sites may have functioned less as permanent sedentary villages, and more as storage and residential centres used periodically by petty chieftains, perhaps themselves linked to the pastoralist groups which visited the area. This is an issue that will be addressed through close consideration of the environmental potential of sites, and by comparing the material culture repertoires of different sites within the project area.

Although the Bronze and Iron Age pottery from sites in Unit 1 has yet to be studied in detail, preliminary indications are that it shows closer connections with that of excavated sites in the Homs region such as Tell Nebi Mend and Mishrifeh-Qatna, than with that of the coast. The presence of small numbers of what have been provisionally identified as imported Cypriot or Mycenaean sherds at sites such as 255 and 256, indicates that during the Late Bronze Age, access to imported pottery was not the sole preserve of residents of the major settlements. It is probably worth making the point

however, that identifiable instances of these imported wares, which are generally fine and occur as small sherds, were almost entirely recovered by the dry-sieving of surface material. Had we relied upon surface pick-up alone as a sampling strategy, imported wares would have been very scarce indeed.

Classical and Islamic periods

Preliminary analysis of the artefactual material collected during reconnaissance survey indicates that the majority of settlements in Unit 1 date to the Roman, Byzantine or Islamic periods, a pattern paralleled in the nearby Lebanese Baq’a (Marfoe 1979, 31, fig. 9). While some of these sites are low mounds, many are simply flat artefact-scatters. Material of these periods is very rare on tell sites, and the evidence argues for a significant reorientation of settlement during the Roman period, which witnessed a move away from fortified tells and the establishment of new, apparently unfortified, settlements. This situation is in line with developments elsewhere in Syria (Tate 1997), and around Homs at least, might be read as indicative of periods when a strong central authority was able to regulate relationships between agricultural settlements and pastoralist groups.

Preliminary evidence suggests that Unit 1 witnessed phases of settlement expansion during the Roman period and in particular during the eleventh to fourteenth centuries AD, perhaps indicating cycles of settlement expansion and abatement. In the light of the frequent remains of oil presses, donkey mills, and the recovery of occasional stone architectural fragments at a number of sites, it is tempting to see the initial expansion of off-tell settlement as characterized by the appearance of rural settlements, connected to the growth of Emesa (Homs) as a major economic centre under the Roman Empire. The construction of the Homs Dam could be considered as a related development, although this cannot be confirmed until the dam has been analysed in greater detail, and a definitive date obtained for its construction.

While work in Unit 3 remains at a relatively early stage, Abdelkarim’s (1997, 140) suggestion that the construction of the field systems in the basalt should be linked to the development of the urban centre of Emesa would appear consistent with the reorientation and expansion of settlement witnessed in Unit 1. The two phenomena could then be viewed as manifestations of a single process, but in very different landscapes.

While the early Islamic period appears under-represented in surface collections from Unit 1, caution

is still required. Our dating of Islamic period occupation remains dependent upon our understanding of glazed ceramics, and it is possible that early Islamic occupations may lie concealed within the, as yet, poorly understood plain and coarse wares. In addition, note should be taken of the fact that a survey in the Balikh Valley revealed that the majority of Early Islamic sites measured between 0.1 and 0.5 ha. in size (Bartl 1994, 237–238), and may have represented small farmsteads. It is possible that, as with the Neolithic, small Islamic period sites are not being detected through the satellite imagery, and that these will only be identified following intensive field-walking. As for the later Islamic periods, there is evidence for the presence in Unit 1 of substantial settlement during the eleventh to fourteenth centuries AD. Whether this applies equally across the whole project area remains to be seen. Whatever the case, rural settlement around Homs clearly followed a very different trajectory from that documented in the limestone massif west of Aleppo, where villages were abandoned in the eighth and ninth centuries AD (Tate 1997, 60).

While the rural settlements around Homs are far less conspicuous than the well-preserved villages of the limestone massif studied by Tate (1992), it would be unwise to assume that this is a true reflection of the importance of the region to the economy of Syria in these periods. Bearing in mind Wilkinson's (2000, 229) point about the greatest destruction of archaeology occurring in the areas of most intensive subsequent land-use, it is possible that the greater duration of occupation around Homs may have contributed, in particular through re-use of building material, to the inconspicuous nature of the sites, when compared to those in the limestone plateau. Furthermore, the marls and gravels that characterise much of Unit 1, may have led to a greater emphasis upon mudbrick, rather than stone for building purposes. The decay of such structures would have led to the formation of sites of relatively low archaeological visibility, compared to those in regions where limestone or basalt were employed for domestic architecture.

Thus far, we have been less successful in the identification of Ottoman period sites, with only one definite instance identified to date. Others may, of course, lie below present-day villages, where archaeological deposits are frequently masked by more recent activity.

Already certain points are becoming clear. On the whole, the material culture of sites in Unit 1 appears at most times to be more closely related to that of inland Syria and the north than to that of southern Levant and the littoral. Within the project area there

are marked, localised variations in settlement distribution and density. While these may be linked to wider political and economic developments, the main shifts appear to be closely related to fluctuations in the location and importance of the major local centres, in particular Kadesh and Homs. It is also becoming clear that superficially very different archaeology may represent different aspects of the same process. For example, the expansion of settlement in Unit 1 and the development of field systems in Unit 3, both appear to reflect the intensification of local agricultural production in response to the expansion of Emesa during the Roman period.

9. Future prospects

Work to date has established the efficacy of CORONA imagery as means for locating a wide range of settlement-types. CORONA has also proved capable of providing high quality data on ancient field-systems, cairns and corrals. While the imagery used to date is incapable of differentiating between walls preserved at different heights, we are currently investigating the potential of CORONA data for stereoscopic work. Equally, we are now becoming aware of the limitations of CORONA imagery, and of those categories of archaeological evidence which it has been less effective at identifying, and the location of which will continue to be dependent upon systematic and intensive field-walking.

Work on the identification and dating of sites in the southern study area is now well advanced. Following completion of initial survey, a subset of sites from each period, designed to include a range of sites and environmental locations will be selected for more detailed investigation. This will include spatially controlled surface collection, section cleaning, test-pitting and geophysical prospection. Preliminary indications indicate that the latter should prove particularly valuable for the investigation of the immediate environment of tell sites, and in the case of plough-soil scatters, many of which have produced elements of stone architecture in surface deposits.

With this in mind, it is planned during the 2001 season to make a comparative investigation of a range of different techniques for the spatially-controlled investigation of settlements in order to establish their effectiveness when applied to different site-types and surface conditions. That season will also see the surface-collection of groups of transects in various parts in the southern study area in order to investigate the distribution of offsite materi-

ls. In addition, a programme of geomorphological work will clarify issues relating to both the nature of the past landscape and the differential visibility of archaeological material.

As the area appears to have been much modified in recent decades, detailed investigation of Units 2 and 4 will take place only after a programme of geomorphological work, while systematic and detailed examination of Unit 3 is scheduled to begin in 2002, following the acquisition of up-to-date, high resolution imagery. As far as environmental work goes, we are beginning to gain some understanding of the history of Lake Qattine, which on the evidence of preliminary coring appears capable of providing data which will not only contribute to the work of the survey, but which may go some way towards filling a major gap in the existing environmental sequences for the Levant.

It is planned in the near future to add extra dimensions to the project through the incorporation of high quality geomorphological data, additional satellite imagery, and a range of both recent and pre-World War II aerial photographic data. This will permit the detailed investigation of patterns of landscape modification through much of the twentieth century, and will highlight those areas at greatest risk from development. While much remains to be done, we feel that we have made significant progress in developing and testing an approach to survey which is well-suited to Middle Eastern landscapes, and that we are beginning to acquire the data which will facilitate the investigation of a wide range of key research questions.

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